CLAIMS

1. A vessel suitable for accepting a liquid biological sample, exposing said sample to a first substance and subsequently a nucleic acid stabilising agent, said vessel comprising:

a) a first substance present inside said vessel,

b) a container in which said stabilising agent is present,

c) a connection between the inside of said vessel and the inside of said container,

d) a physical barrier that temporarily blocks said connection.

2. A vessel according to claim 1 wherein said first substance is immobilised on part or all of the inside surface of said vessel.

3. A vessel according to claim 1 wherein said first substance is immobilised on a solid support.

4. A vessel according to claim 1 wherein said first substance is a liquid.

5. A vessel according to claim 1 wherein said first substance is a solid.

6. A vessel according to any of claims 1 to 5 comprising one or more areas suitable for puncture by a syringe needle.

7. A vessel according to any of claims 1 to 6 wherein said area is a re-sealable septum.

8. A vessel according to any of claims 1 to 7 comprising a fitting suitable for receiving a syringe and transmitting the contents therein to the interior of said vessel.

9. A vessel according to any of claims 1 to 8 comprising a fitting suitable for receiving a syringe needle.

10. A vessel according to any of claims 1 to 9 comprising a cannular suitable for withdrawing bodily fluids.

11. A vessel according to claims 1 to 10 comprising a valve which is capable of minimising the flow of gas/liquid from vessel, and allowing the flow of liquid biological sample into the vessel.

12. A vessel according to any of claims 1 to 11 comprising a means through which displaced gas may be expelled.

13. A vessel according to any of claims 1 to 12 wherein said vessel is held under negative pressure.

14. A vessel according to any of claims 1 to 13 wherein the physical barrier of item d) is opened by the application of physical force to said vessel.

15. A vessel according to claim 14 wherein said force transmits an opening means to said physical barrier.

16. A vessel according to claims 14 and 15 wherein said force irreversibly opens said physical barrier.

17. A vessel according to any of claims 1 to 16 wherein said vessel comprises an indication for dispensing a known volume of stabilising agent therein.

18. A vessel according to any of claims 1 to 17 wherein said first substance comprises one or more immune system antigens.

19. A vessel according to claim 18 wherein said immune system antigens are vaccine components.

20. A vessel according to claim 18 wherein said immune system antigens are antigens which provoke a hyperallergenic response.

21. A vessel according to claim 18 wherein said immune system antigens are one or more selected from histocompatibility antigens, bacterial LPS, tetanous toxoid, a cancer

immunotherapy antigen, MAGE-3, a cat allergen, Feld1, antigen presenting cells from an organ donor, an autoantigen, GAD65.

22. A vessel according to any of claims 1 to 21 wherein said stabilising agent is an inhibitor of cellular RNA degradation and/or gene induction.

23. A vessel according to claim 22 wherein said inhibitor of cellular RNA degradation and/or gene induction is that as found in a PAXgene™ Blood RNA Tube.

24. A method of pulsing a sample of blood with an antigen, subsequently inhibiting cellular RNA degradation and/or gene induction therein and subsequently testing RNA components in the stabilised blood sample so pulsed comprising the use of a vessel according to any of claims 1 to 23.

25. A method of testing the immune response of an individual towards an antigen comprising the use of a vessel according to any of claims 1 to 23 wherein the first substance is the antigen under investigation, comprising the steps of:

a) introducing a sample of blood taken from said individual into the vessel,

b) optionally agitating said vessel,

c) introducing after a pre-determined period of time, said nucleic acid stabilising agent into said vessel, and

d) testing the levels of mRNA.

26. A method according to claim 25 where step d) further comprises the steps of

e) forming a precipitate comprising nucleic acids,

f) separating said precipitate of step (e) from the supernatant,

g) dissolving said precipitate of step (f) using a buffer, forming a suspension,

h) isolating nucleic acids from said suspension of step (g) using an automated device,

i) dispersing/distributing a reagent mix for RT-PCR using an automated device,

j) dispersing/distributing the nucleic acids isolated in step (h) within the dispersed reagent mix of step (i) using an automated device, and,

k) determining the *in vivo* levels of transcripts using the nucleic acid/RT-PCR reagent mix of step (j) in an automated setup.

27. A method according to claims 25 and 26 wherein the immune response of an individual towards an antigen against which the individual has been pre-immunised is tested, the first substance is the antigen under investigation and the levels of cytokine mRNA are tested.

28. A method according to claim 27 wherein said cytokine is one or more of IL-2, IL-4, IL-13, IFN-gamma.

29. A method according to claims 25 and 26 wherein the hyperallergenicity of an individual towards an antigen is tested, the first substance is the antigen under investigation and the levels of IL-4 mRNA are tested.

30. A method according to claims 25 and 26 wherein the rejection of an organ transplant in an individual towards an antigen is tested, wherein the first substance is a histocompatibility antigen of the donor and the levels of IL-2 mRNA are tested.

31. Use of a vessel according to any of claims 1 to 23 for pulsing a sample of blood with an antigen, subsequently inhibiting cellular RNA degradation and/or gene induction therein and subsequently testing RNA components in the stabilised blood sample so pulsed.

32. Use of a vessel according to any of claims 13 to 23 for extracting a pre-determined volume sample of blood from an individual using said needle or cannular, pulsing said sample with an antigen, subsequently inhibiting cellular RNA degradation and/or gene induction therein and subsequently testing RNA components in the stabilised blood sample so pulsed.

33. A kit suitable for pulsing a liquid biological sample with a first substance, and subsequently introducing an agent that inhibits cellular RNA degradation and/or gene induction thereto, and testing mRNA components in the stabilised blood sample so pulsed, said kit comprising:

a) a vessel in which said first substance is present, and

b) a container in which said agent is present.

34. A kit according to claim 33 wherein the inside of said vessel and the inside of said container are connected, and a physical barrier temporarily blocks said connection.

35. A kit according to claims 33 and 34 wherein said first substance is immobilised on part or all of the inside surface of said vessel.

36. A kit according to any of claims 33 to 35 wherein said first substance is immobilised on a solid support.

37. A kit according to any of claims 33 and 34 wherein said first substance is a liquid.

38. A kit according to any of claims 33 and 34 wherein said first substance is a solid.

39. A kit according to any of claims 33 to 38 wherein said vessel comprises one or more openings.

40. A kit according to any of claims 33 to 39 said vessel comprises one or more areas suitable for puncture by a syringe needle.

41. A kit according to any of claim 40 wherein said area is a re-sealable septum.

42. A kit according to any of claims 33 to 41 wherein said vessel comprises one or more fittings suitable for receiving a syringe and transmitting the contents therein to the interior of said vessel.

43. A kit according to any of claims 33 to 42 wherein said vessel comprises one or more fittings suitable for receiving a hypodermic syringe needle.

44. A kit according to any of claims 33 to 43 wherein said vessel comprises one or more cannulars suitable for withdrawing bodily fluids.

45. A kit according to any of claims 33 to 44 wherein said vessel comprises one or more valves which are capable of minimising the flow of liquid from vessel, minimising the flow of gas into or from vessel, and/or allowing the flow of liquid biological sample into the vessel.

46. A kit according to any of claims 33 to 45 wherein said vessel comprises one or more means through which displaced gas may be expelled.

47. A kit according to any of claims 33 to 46 wherein said vessel is held under negative pressure.

48. A kit according to any of claims 33 to 47 wherein the physical barrier of item d) is opened by the application of physical force to said vessel.

49. A kit according to claim 48 wherein said force transmits an opening means to said physical barrier.

50. A kit according to claims 48 and 49 wherein said force irreversibly opens said physical barrier.

51. A kit according to any of claims 33 to 50 wherein said vessel and/or container comprises an indication for dispensing a known volume of stabilising agent therein.

52. A kit according to any of claims 33 to 51 wherein said first substance comprises one or more immune system antigens.

53. A kit according to claim 52 wherein said immune system antigens are vaccine components.

54. A kit according to claim 52 wherein said immune system antigens are antigens which provokes a hyperallergenic response.

55. A kit according claim 52 wherein said immune system antigens are are selected from one or more of histocompatibility antigens, bacterial LPS, tetanous toxoid, a cancer immunotherapy antigen, MAGE-3, a cat allergen, Feld1, antigen presenting cells from an organ donor, an autoantigen, and GAD65.

56. A kit according to any of claims 55 to 55 wherein said inhibitor of cellular RNA degradation and/or gene induction is that as found in a PAXgene™ Blood RNA Tube.

57. A kit according to any of claims 33 to 56 for testing the immune response of an individual towards an antigen against which the individual has been pre-immunised wherein the first substance is the antigen under investigation and the mRNA tested is cytokine mRNA.

58. A kit according to claim 57 wherein said cytokine is one or more of IL-2, IL-4, IL-13, IFN-gamma.

59. A kit according to any of claims 33 to 56 for testing an individual for hyperallergenicity towards an antigen wherein the first substance is the antigen under investigation and the mRNA tested is IL-4 mRNA.

60. A kit according to any of claims 33 to 56 for testing an individual for rejection of an organ transplant wherein the first substance is a histocompatibility antigen of the donor and mRNA tested is IL-2 mRNA.

61. A kit according to ant of claims 33 to 60 further comprising one or more oligonucleotides suitable for said testing said mRNA(s).